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Case Report

Erythema induratum of Bazin involving the upper and lower limbs in a 24-year-old female diagnosed by fine-needle aspiration cytology: A case report

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ABSTRACT

Cutaneous tuberculosis is a rare form of extra-pulmonary tuberculosis with a wide variety of clinical presentations. Erythema induratum of Bazin is a type of cutaneous TB that occurs as a tuberculid reaction, most commonly involving the lower limbs and presenting with subcutaneous nodules; rarely, the upper limbs may be affected. Herein, we present the case of a 24-year-old female who presented with a two-year history of painful, hyperpigmented, subcutaneous nodules involving both lower and upper limbs. Laboratory investigations revealed an elevated erythrocyte sedimentation rate, a normal chest X-ray, and fine needle aspiration cytology showing epithelioid granuloma with Langhans-type giant cells. Based on these findings, a diagnosis of cutaneous tuberculosis was made, and the patient was treated with WHO-recommended first-line anti-tubercular therapy. The subcutaneous nodules showed significant improvement after the completion of the two-month intensive phase. This case highlights that erythema induratum of Bazin may involve the upper limbs and that fine needle aspiration cytology may serve as a useful diagnostic tool in resource-limited settings.

Key words: Cutaneous Tuberculosis, Erythema Induratum Of Bazin, FNAC, Limbs

INTRODUCTION

Cutaneous tuberculosis is a manifestation of extrapulmonary tuberculosis with varied clinical presentations [1]. It is broadly classified into true cutaneous tuberculosis and tuberculids [2]. Erythema induratum of Bazin is a type of tuberculid that predominantly involves the posterior aspects of the lower legs [3]. Clinically, it presents as a tender, recurrent subcutaneous nodules that may ulcerate and heal with residual scarring, most commonly affecting middle-aged women [3,4].

CASE REPORT

A 24-year-old female patient presented with recurrent painful skin lesions of two years' duration. She had no history of fever, cough, loss of appetite, or weight loss. There was no prior history of tuberculosis treatment or contact with a known tuberculous patient. Cutaneous examination revealed hyperpigmented, tender, erythematous nodules without ulceration, predominantly involving the posterior and medial aspects of the legs (Fig. 1a and 1b). A few similar tender erythematous nodules were also noted on the bilateral arm (Fig. 1c and 1d). On investigation, complete blood count and C-reactive protein levels were within normal limits, while the erythrocyte sedimentation rate was elevated to 60 mm/hour. Fine-needle aspiration cytology revealed features suggestive of epithelioid granuloma with Langhans-type giant cells (Fig. 3a and 3b).

DISCUSSION

Tuberculosis is a chronic infectious disease caused by *Mycobacterium tuberculosis*. Its global incidence varies

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Figure 1: Erythema induratum of Bazin involving (a and b) the posterior leg and (c and d) bilateral forearm.

Figure 2: (a and b) Post-inflammatory hyperpigmentation on the posterior leg secondary to erythema induratum of Bazin two months after treatment.

considerably, with a disproportionately higher burden in developing countries [5].

Tuberculosis is a multisystem infectious disease caused primarily by *Mycobacterium tuberculosis* [5]. While pulmonary involvement remains the most common manifestation, tuberculosis may present in a variety of extrapulmonary forms, including cutaneous tuberculosis, which accounts for approximately 1–2%

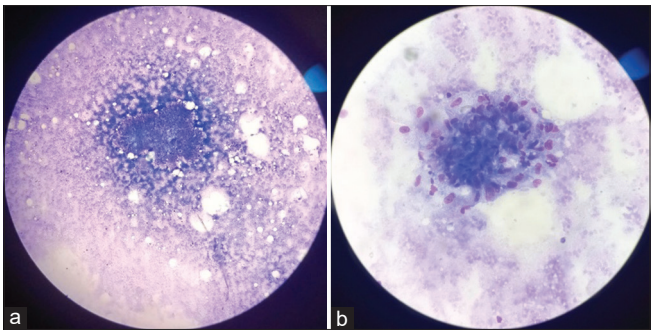

Figure 3: The smear is composed of scattered multinucleated Langhans-type giant cells and aggregates of epithelioid cells forming granulomas, admixed with some chronic mononuclear inflammatory cells on a hemorrhagic background. a) 10× power field, b) 40× power filed.

of all cases [5,6]. Cutaneous tuberculosis was first described by Theophile Laennec in 1826 and represents a rare but clinically significant form of the disease [1]. It is most commonly caused by *M. tuberculosis*, although infections due to *M. bovis* or following Bacillus Calmette–Guérin (BCG) vaccination have also been reported [1].

Cutaneous tuberculosis may result from direct inoculation, lymphatic or hematogenous spread, or from a hyperactive immune response to mycobacterial antigens, leading to tuberculid lesions [4,8]. Generally, cutaneous tuberculosis is classified into true cutaneous tuberculosis and tuberculids [2]. Erythema induratum of Bazin (EIB) is a tuberculid caused by a T-cell–mediated immune response to mycobacterial antigens, commonly arising from a latent focus of tuberculosis [4]. It is thought that EIB is related to tuberculosis antigens due to the detection of DNA in the microorganism with the polymerase chain reaction (PCR) in the tissue and the

response of the disease to tuberculosis treatment [12]. Although EIB is more frequently observed in young women, it may also occur in older individuals. EIB was first described by Bazin in 1861 [3,7].

EIB typically affects the posterior aspect of the legs, presenting as tender, chronic, recurrent subcutaneous nodules that have a tendency to ulcerate and heal with atrophic scarring [3,4]. Other sites, including the forearms, thighs, feet, trunk, and buttocks, may also be involved [1,12]. Differential diagnoses include erythema nodosum and nodular vasculitis. Diagnosis of EIB is made based on typical clinical features, histopathological findings, and the exclusion of other causes of a nodular leg lesion. It may be supported by a favorable response to antitubercular therapy. Our case presented with typical clinical features of tender, recurrent subcutaneous nodules involving the posterior and lateral aspects of the lower legs, which are characteristic sites. In addition, the involvement of a less common site, the forearm, was observed. The diagnosis was supported by FNAC findings of tuberculoid granulomas with giant cells (Fig. 3a and 3b) and an elevated erythrocyte sedimentation rate of 60 mm/hr. Pulmonary involvement was excluded by a normal chest radiograph. On follow-up, a favorable response to antitubercular therapy further supported the diagnosis retrospectively.

Several case reports of erythema induratum of Bazin have been diagnosed by histopathological examination using biopsy, and none have been diagnosed solely by fine-needle aspiration cytology (FNAC), as in our case. In a few reports, additional histopathological examination was performed to confirm the diagnosis. Moreover, the involvement of the forearm in erythema induratum of Bazin is rare, with only a limited number of cases documented in the literature [12].

The treatment of cutaneous tuberculosis involves first-line antitubercular therapy, including isoniazid, rifampicin, pyrazinamide, and ethambutol for six months, as recommended by the WHO [9]. In cases of EIB, therapy may need to be prolonged for up to two years if lesions do not fully resolve [10]. Adjuvant treatments such as dapsone, potassium iodide, or doxycycline may be considered in refractory cases [11,12]. Our patient showed significant improvement upon the completion of the two-month intensive phase of antitubercular therapy, with complete resolution of the subcutaneous nodule and its replacement by a hyperpigmented patch (Fig. 2). The patient's symptoms resolved completely.

CONCLUSION

This case highlights that erythema induratum of Bazin may involve the upper limbs and that fine needle aspiration cytology may serve as a useful diagnostic tool in resource-limited settings.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

REFERENCES

1. dos Santos JB, Figueiredo AR, Ferraz CE, de Oliveira MH, da Silva PG, de Medeiros VLS. Cutaneous tuberculosis: Epidemiologic, etiopathogenic and clinical aspects – Part I. An Bras Dermatol. 2014;89:219-28.
2. dos Santos JB, Figueiredo AR, Ferraz CE, de Oliveira MH, da Silva PG, de Medeiros VLS. Cutaneous tuberculosis: Diagnosis, histopathology and treatment – Part II. An Bras Dermatol. 2014;89:545-55.
3. Cho KH, Lee DY, Kim CW. Erythema induratum of Bazin. Int J Dermatol. 1996;35:802-8.
4. Zhang J, Fan YK, Wang P, Chen QQ, Wang G, Xu AE, et al. Cutaneous tuberculosis in China: A multicenter retrospective study of cases diagnosed between 1957 and 2013. J Eur Acad Dermatol Venereol. 2018;32:632-8.
5. Ankrah AO, Glaudemans AWJM, Maes A, Van de Wiele C, Dierckx RAJO, Vorster M, et al. Tuberculosis. Semin Nucl Med. 2018;48:108-30.
6. Mehta PK, Raj A, Singh N, Khuller GK. Diagnosis of extrapulmonary tuberculosis by PCR. FEMS Immunol Med Microbiol. 2012;66:20-36.
7. Kuramoto Y, Aiba S, Tagami H. Erythema induratum of Bazin as a type of tuberculid. J Am Acad Dermatol. 1990;22:612-6.
8. Bhattacharya SN, Jain S, Logani KN. Cutaneous tuberculosis: The evolving scenario. Int J Dermatol. 1994;33:97-104.
9. Patil K, Bagade S, Bonde S, Sharma S, Saraogi G. Recent therapeutic approaches for the management of tuberculosis: Challenges and opportunities. Biomed Pharmacother. 2018;99:735-45.
10. Dias MFRG, Bernardes Filho F, Quaresma MV, do Nascimento LV, Nery JAC, Azulay DR. Update on cutaneous tuberculosis. An Bras Dermatol. 2014;89:925-38.
11. Sharon V, Goodarzi H, Chambers CJ, Piette WW. Erythema induratum of Bazin. Dermatol Online J. 2010;16:1.
12. Polat AK, Karaali MG, Aksu AEK, Erdemir VAT, Leblebici C, Gurel MS. A rare cutaneous tuberculosis form, erythema induratum of Bazin: 6 years' experience. Acta Dermatovenerol Alp Pannonica Adriat. 2020;29:123-8.

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